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The Fourth Industrial Revolution in the Light of Social and Competence Changes

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Abstract:

Purpose: *The aim of the article is to review the literature on the changes that the Fourth Industrial Revolution brings in terms of competence requirements at the workplace or the characteristics of professions. The article also focuses on changes in the sector related to finance or accounting in general.*
Design/Methodology/Approach: *The objectives are achieved due to a systematic literature review of Fourth Industrial Revolution's outcomes, which leave their mark on job and competence requirements.*
Findings: *The article introduces the concepts of the Fourth Industrial Revolution and the problem of new requirements that are placed and will be placed on employees in the labour market, which is currently characterized by considerable volatility. New technologies are completely changing the competence requirements for labour market participants, which can also bring about significant social changes.*
Practical Implications: *The article can be seen as a clue to scientists as to the existing gaps in the description of the social consequences of the Fourth Industrial Revolution. The conducted literature analysis allows to identify areas that need to be investigated more closely. In addition, the article draws attention to the need for a deeper description of the requirements placed on employees in the financial area and, consequently, the need to adapt curricula in this area.*
Originality/Value: *Nowadays, people and organizations have to deal with complexity of economic environment. This complexity, which is the result of Industry 4.0, requires continuous adaptation, shaping and development of competences. This article approximates the characteristics and importance of the social side of the changes by showing the direction in which labour market participants should develop.*

Keywords: *Industry 4.0, competences, fourth industrial revolution, social side.*

Paper type: *Literature review.*
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1. Introduction

The Fourth Industrial Revolution, also known as Industry 4.0, is a term that defines the changes that are taking place in society, industry and technology, which are related to the digitisation of industry, automation, data processing and exchange, and modern manufacturing techniques. This concept is based on a greater involvement of intelligent systems and robots in different types of manufacturing sectors and services that are able to work longer and more efficiently than humans.

The fundamental thing for Industry 4.0 is the interpenetration of the physical and digital world, their complementing and enrichment. In fact, it is difficult to predict what the changes that Industry 4.0 entails will ultimately bring. It should be emphasized, however, that we already know a foretaste of what awaits us. Artificial intelligence, wireless connectivity, automation, biotechnology, nanotechnology, big data, autonomous vehicles are all happening before our eyes and completely change the world around us and its characteristics. It is noteworthy that connectivity and the massive multilateral exchange of information between devices, but also between devices and humans, is a driver of technological change. What is more, the speed of information flow increases the rate of change.

All these epochal changes, which make the process of technological change known as revolution, will also not bypass the financial sector, a sector in which graduates of majors such as finance, accounting and controlling will have to find their way into (Ghani and Muhammad, 2019). Access to a huge amount of real-time information will completely change the requirements of employees in accounting or accounting departments, as revolution changes the focus from obtaining a limited amount of information to making the most efficient use of unlimited information (Tiwari and Khan, 2020). The Fourth Industrial Revolution completely changes the way we obtain and communicate information. The higher level of communication makes it possible to combine the real world with the digital world on a global scale.

Such a change in approach and understanding of fundamental and so far, unchanging paradigms determines a complete change in the perception of positions. Job capacity tasks will be completely different, some professions may cease to exist, which will consequently change the necessary competences, experiences and skills required by employers, and thus may affect the requirements of the education system (Hong and Ma, 2020). Research indicates that even though the work environment and skills development aspects are very well described and monitored, these issues are not dealt with or even solved (Maresova *et al.*, 2018).

The aim of the article is to review the literature on the changes that the Fourth Industrial Revolution brings in terms of competence requirements at the workplace or the characteristics of professions. The motivation to focus on competence and competence requirements is that they are necessary for the proper functioning of the

workplace and for facing the challenges that this work brings (Boyatzis, 1982). Furthermore, the article also focuses on changes in the sector related to finance or accounting in general. This is motivated by the fact that there is a gap in the description of changes in the competence requirements for people in this sector. All attempts to define the relevance of competences and, consequently, also attempts to adapt curricula, focus primarily on engineering issues. Besides the keyword's analysis, the deeper analysis of selected texts conducted, supplemented by reports from international organizations and the literature of the subject, allowed for a precise definition of trends of the social side of change 4.0.

2. Literature Review

2.1 The Essence of the Fourth Industrial Revolution

The term, first used in Germany (Davies, 2015), is gaining increasing popularity worldwide, drawing the attention of an increasing number of scientists who are trying to define this complex phenomenon (Rejikumar *et al.*, 2019). In fact, it is difficult to predict what the changes that Industry 4.0 entails will ultimately bring. It is noteworthy that connectivity and the massive multilateral exchange of information between devices, but also between devices and humans, is a driver of technological change. The Fourth Industrial Revolution is a term that describes technologies such as (Coşkun *et al.*, 2019):

- the Industrial Internet,
- Factories of The Future,
- Internet of Things,
- Physical Internet,
- Internet of Services,
- Cyber-Physical Systems,

which systemically help the functioning of economic organizations, for example by relying on virtual simulations and real-time data processing in decision-making processes, changes in machine-to-machine and machine-to-man communication strategies (Internet of Things), or by disseminating new manufacturing technologies, including flexible production lines (Furmanek, 2018).

Revolution 4.0 means the disappearance of the barrier between humans and machines. The information is deposited and processed in processing centres, available at any time, from anywhere. It can be used to optimize production processes. Industry 4.0 is the integration of systems and networking of connections in production processes, as well as close cooperation between people and digitally controlled machines that use information technology (Herceg, Kuč, Mijušković, and Herceg, 2020).

The introduction of ubiquitous digitalisation highlights the ubiquity of information technologies in every area of life. These developments will transform the way we live, and the way we work. Some jobs will disappear, others will grow and jobs that don't even exist today will become commonplace. What is certain is that the future workforce will need to align its skillset to keep pace. That is why Industry 4.0 expects major changes in human resource management and processes such as education (Stachová *et al.*, 2019).

The fourth revolution brings the attention of most scientists who study its technical side. Social aspects, its impact on social relations, and competence requirements are not so widespread. The revolution also brings about changes in society, due to the strong links between a digital society, digital culture and what underlies Revolution 4.0 (Mazali, 2018). The changes caused by Revolution 4.0 manifest themselves on many levels. Productive, social, or even political changes can also lead to significant social transformations in the future (Kurt, 2019). These considerations lead us to conclude that it is essential to study the human factor of change, this social element of change (Marková, Prajová, Homokyová, and Horváthová, 2019).

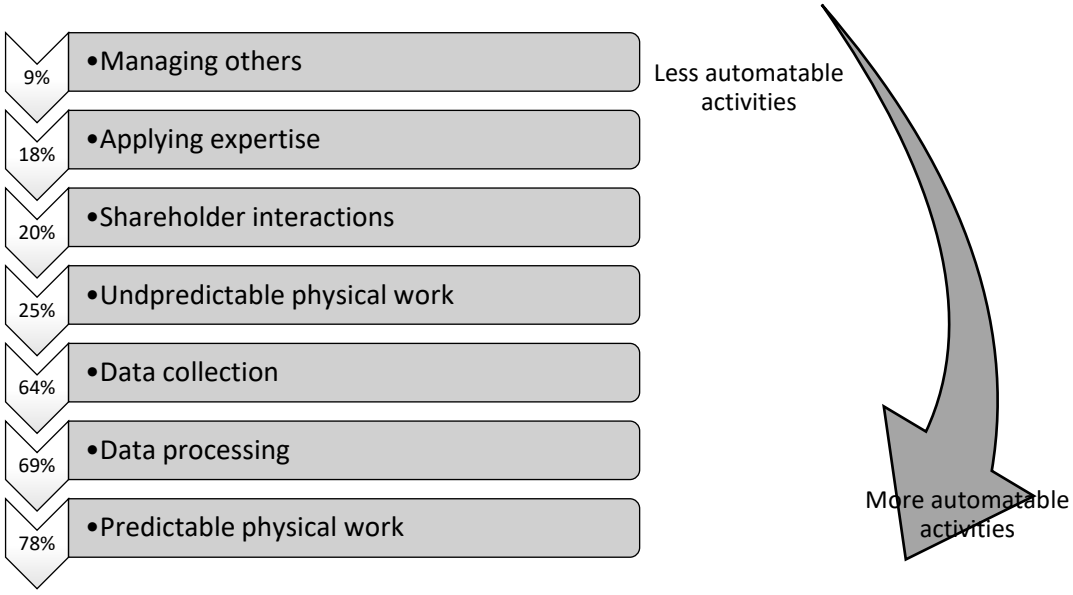
The World Economic Forum predicts that millions of workers could be at risk of losing their existing jobs. These projections apply to both developed and developing countries (Cann, 2016). Increasing machine involvement at the expense of labour at every stage of production is becoming one of the more distinctive features of the Fourth Industrial Revolution. The reduction in the number of employees is mainly related to workers from the production line (Olender-Skorek, 2017). It should be stressed that this does not necessarily be equivalent to a significant increase in unemployment. Advanced technologies are not created to completely replace man, but to make the most of the opportunities offered by human work with technology. Figure 1. reveals implications of new technologies for the future of work by showing work activities at risk from automation (McKinsey, 2017).

Revolution 4.0 brings with its fundamental changes in the nature of the work performed and the competence requirements (Chmielecka Kraśniewska *et al.*, 2019). As seen in Figure 1 the need for employees performing routine work that can be automated is expected to be significantly reduced (Selamat *et al.*, 2017; Peters, 2017). On the other hand, there will be an increasing demand for highly skilled employees in the labour market (Brynjolfsson and Mcafee, 2014). Managing other is unlikely to be automatized. Hence, of particular importance is continuous training and development in the areas of advanced web-based applications, emotional intelligence, flexibility, adaptability to change, leadership and presentation skills, especially amongst administrative professionals (Venter, Herbst and Iwu, 2019).

Any change for most may seem a threat, due to the equate of a change with something unknown. However, it should be remembered that any change brings great opportunities for development. In order to reduce the competence gap and take

advantage of emerging opportunities for development, current and future employees should be equipped with the right set of skills (Maisiri, Darwish, and van Dyk, 2019). It is also important to be aware of the importance of the changes taking place. The education system certainly plays an important role in this process. It is its task to provide, for example, university graduates with adequate education, thanks to which they will be able to meet the challenges of Revolution 4.0 (Kergroach, 2017). For the proper adaptation of curricula, it is fundamental to examine thoroughly the competence requirements in order to determine what competences will be most important in terms of the new, post-revolutionary economic and social reality. To meet the workforce demands of Industry 4.0, strengthening learning in existing and new education systems will be crucial (Coşkun *et al.*, 2019).

Figure 1. *Implications of new technologies for the future of work. Source: own, basing on: "A future that works automation, employment, and productivity" by McKinsey Global Institute.*



Source: *Own study.*

2.2 Competences 4.0

Years of research on defining the concept of competence have resulted in a multitude of concepts of competence definition. The review of definitions shows that the vast majority of definitions have common elements. The concept of competence in most cases is based on components such as knowledge, skills, or attitudes (Spencer and Spencer, 1993; Kossowska and Sołtysińska, 2002, Project Management Institute, 2007).

Competences by their very nature are dynamic and show the need for their proper configuration, which will be adapted to the specificities of the organization or the environment (Kor and Mesko, 2013). These characteristics provoke a constant need to shape, improve them. The process of a deliberate, systematic, and methodical approach to these challenges, which consists in adapting the knowledge, skills, and attitudes of employees to the purposes and mission is called competence management (Spychała and Matejun, 2015).

It is also crucial that organisations and businesses are currently operating in an economy that relies heavily on knowledge. This is why the importance of competence management theory, which makes it possible to use human capital in an organisation as much as possible (Wieczorek-Szymańska, 2012). It should also be stressed that the organisations operate in conditions of considerable complexity, variability of conditions caused by the epochal changes of Revolution 4.0, which give rise to constant changes in the competence requirements of labour market participants. It is indisputable that, for example, managers with appropriate competences make a significant contribution to ensuring the success of a company that can be defined by creating and consolidating value for customers, ensuring a return on invested capital at a satisfactory level and, consequently, in the longer term, increasing the value of the company (Tyrańska, 2017), which nowadays is the main purpose of economic activity. Nevertheless, every employee, not only a manager, who is equipped with the right set of competences, awareness and readiness for change is the most valuable asset of modern enterprises.

The change in competence requirements is confirmed by reports on this issue. OECD Report "The future of education and skills Education 2030" 2017 lists the following skills that education can help meet the challenges of the future (Chmielecka and Kraśniewska, 2019):

- Interdisciplinary skills,
- Creative and analytical skills,
- Digital and technical skills,
- Entrepreneurial skills,
- Leadership skills,
- Global awareness and civic education.

World Economic Forum's Report „Future of Jobs Report" z 2016 brings us a comparison of the key competences required in 2015 and 2020. Their comparison is shown in Table 1.

The above comparison indicates that the most important competences are the competences related to the ability to adapt to the different changing conditions in which the individual is located. The technological development of the Fourth Revolution brings continuous changes, which, thanks to flexibility and adaptation

skills, can become an opportunity for development. Śledziewska and Włoch (2020) propose the division of competences required by Industrial Revolution 4.0 into three groups (Table 2) digital and technical, cognitive, and social.

Table 1. *Comparing the top 10 competences in 2015-2020. Source: own, basing on: "Future of Jobs Report", 2016, World Economic Forum*

Top 10 competences	
2020	**2015**
• Complex problem solving • Critical thinking • Creativity • People management • Coordinating with others • Emotional intelligence • Judgment and decision making • Service orientation • Negotiation • Cognitive flexibility	• Complex problem solving • Coordinating with others • People management • Critical thinking • Negotiation • Quality control • Service orientation • Judgment and decision making • Active listening creativity • Creativity

Source: *Own study.*

Table 2. *Division of competences required by the Industrial Revolution 4.0. Source: own, basing on "Jakich kompetencji wymaga rewolucja przemysłowa 4.0?", Pomorski Przegląd Gospodarczy*

Competences		
Digital and technical	**Cognitive**	**Social**
These are the skills of the so-called "hard". Digital competences are particularly important, which are not limited to data programming or analysis, but cover a wide range of skills, from digital problem solving to privacy and cybersecurity knowledge.	Colloquially, they are called the competence of thinking. This is a broad concept, including: • creativity • logical reasoning, • solving complex problems, • critical thinking, • ability to assess the quality of information, • adaptability, • flexibility • openness to change	These competences are crucial when it comes to dealing with change, about building openness in the face of uncertainty. Examples of social competences required may be: • teamwork • human management, • entrepreneurship • emotional intelligence, • leadership

Source: *Own study.*

The literature review shows us the trend of gradually moving from developing the competences needed to perform repetitive work (that is, knowing how to do it and

being able to do it) to creative work, which is to come up with how to do it and learn everything you need to be able to do it (OECD, 2017).

Such a change means that emphasis is placed on problem-solving education and developing self-learning competences. Preparing for lifelong learning becomes one of the most important competences (Gleason, 2018). Moreover, increasing use of artificial intelligence demands strong man-machine interaction to achieve improved productivity. Besides technical and technological skills, this interaction demands strong non-technical – soft skills, such as emotional intelligence, critical thinking, creativity, innovation communication, collaboration, leadership, teamwork (Maisiri *et al.*, 2019), self-organization and management (Kergroach, 2017). The emphasis on such competences is a profound change. At present, for instance, the typical factory worker does not receive training in these areas because the job content usually does not require the use of these skills (Cotet, Carutasu, and Chiscop, 2020). It is likely that in the near future that soft competence may become indispensable for people in these positions.

2.3 Revolution 4.0 in the World of Finance

Any revolutionary changes will not only bypass the financial sector professions but may revolutionise them. It should be stressed that professions linked to finance, accounting or controlling are key to the proper functioning of modern companies. For these reasons, this area has been chosen as an example of the complexity and relevance of a problem in an industry that on the surface might seem to be resilient to major technological changes. Furthermore, such occupations like accountants and auditors are susceptible are to computerisation (Frey and Osborne, 2017). The authors decided to present this area as an example of the enormous influence of the Fourth Thought Revolution on future employment and competences. This choice is also guided by the fact that the literature on the Fourth Revolution focuses to a large extent on changes in the curriculums of engineers or other technical fields, leaving a gap in research on the teaching of financial graduates.

In their interviews, accounting experts highlight the need to define the requirements that are and will be met by finance and accounting employees. They also highlight the fact that the Fourth Revolution leads to a change in the characteristics of work in individual positions and to a change in the way and the teaching system (Ghani and Muhammad, 2019). If we look at Figure 3 again, we can see that activities identified with the work of an accountant such as Data collection or Data processing carry a high risk of future automation. Hence, we can conclude that the characteristics of the job in this position can change completely. Consequently, the competence requirements of those in this position, as well as the requirements for the education system for those aspiring to this position, will change.

Let the fact that basic concepts such as the source document take on a completely different meaning in the light of digitalisation prove a complete change in the characteristics of the work. It is no longer merely a classic paper accounting document which has the relevant characteristics laid down in the legislation. It became a collection of digital codes going through the digital processing stages (Jujeczka-Sroka, 2019), to finally reflect the numerical in the financial and accounting system, which allows not only the corresponding amounts to be credited to the accounting accounts, but also gives the multidimensional information necessary for a ground management analysis (Wadan, Teuteberg, Bensberg, and Buscher, 2019).

The increasing number of data at hand in the cloud, accounting applications and other technologies means that soon the classic accountant may cease to exist and, in its place, will appear completely different from the traditional – e-accountant, whose role will in no way resemble what we know so far. The tasks of accounting and finance-related individuals in organizations will be less likely to include automated and repetitive tasks, such as, for example, data entry. The objectives of analysing and using unlimited data (OECD, 2015) in real time for optimal decision-making will become more important (Tiwari and Shadab Khan, 2020). An accountant will be less about accounting and more about managing. The accountant is going to be more like a business partner to upper management and shareholders.

Changes caused by the rapid technological development are already leaving their mark on the financial functions of companies. CIMA – Future of Finance report shows that 54% of financial departments in companies already use cloud solutions, 11% use robotics and 25% use advanced data analytics (CIMA, 2019). This shows that companies are increasingly benefiting from the support of digital technologies in the financial area. In addition, many of them plan to implement such solutions in the near future. This also underlines the need to adapt the curricula of the studies related to financial area.

Moreover, as the accountancy professions are thought to move towards a more strategic and insights-based fields, soft skills like patience, understanding, and the ability to adapt will become even more necessary. The technical skills have always been deemed important. Nevertheless, these soft skills are becoming equally valuable because they will allow individuals to bridge the gap between machines and people (Kruskopf *et al.*, 2019).

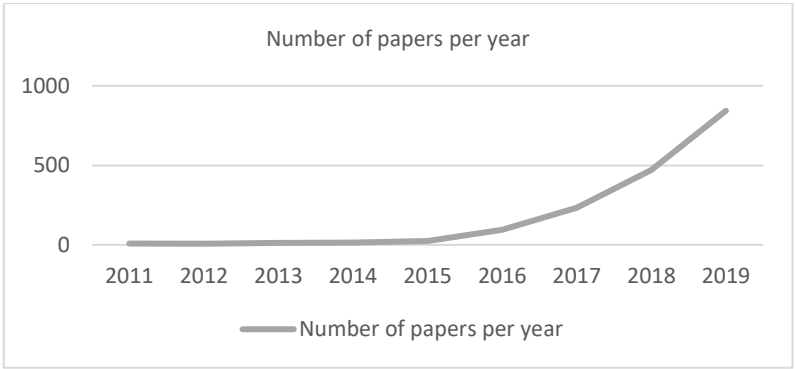
All these changes represent and will pose a challenge for students completing financial, accounting, or controlling courses. Therefore, it is important to examine the level of awareness and knowledge of students, the consequences of the changes of Revolution 4.0. It should be noted that preparing future employees for changes in the labour market due to technological progress is an important issue for the functioning of modern enterprises. The basis for them is qualified staff, aware of the changes and ready to take on the challenges that the Fourth Revolution brings, as this can give an

advantage in increasingly competitive markets. It is the students of financial or economic fields who will largely determine the strength of the staff in the management or accounting divisions of the organization. Industry 4.0 poses huge challenges for the education system, which must equip people with the right competences so that those entering the labour market are not only aware of the challenges they encounter, but also face them. Literature analysis indicates that the dominant issue raised by researchers is the preparation of students graduating from technical studies (Jajuri, Hashim, Ali, and Abdullah, 2019; Kondratyev, Galikhanov, Osipov, Shageeva, and Kaybiyaynen, 2019; Laciok *et al.*, 2019; Jeganathan, 2019).

3. Materials and Methods

In order to present the research approach related to the social outcomes of Industry 4.0 and its impact on competences and job requirements the literature review process was carried out. The first step in the research was to analyse the relevance of the description of the issue of the social effects of Revolution 4.0 changes. In order to examine the significance, an analysis of the Scopus database was carried out, with a view to determining the number of scientific publications on the Fourth Revolution and subsequently comparing those concerning technical issues in relation to the number of publications addressing social issues. The Fourth Industrial Revolution searching in Article Title, Abstract and Keywords yielded 2,127 results. The distribution of publications for each year is presented by Figure 2.

Figure 2. *Number of papers regarding Fourth Industrial Revolution, own study based on Scopus*



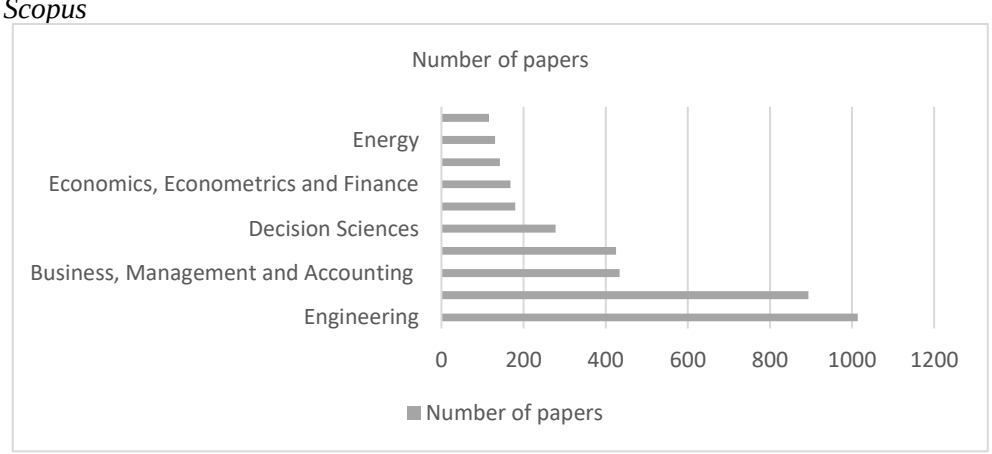
Source: *Own study.*

Figure 2 proves that the Fourth Industrial concept is gaining great interest from scientists, as evidenced by the steady increase in publications on this issue. In addition, the analysis of the results gives us a reflection that the analysis of literature should start between 2015 and 2020, when there is a significant increase in publication. This may be influenced by the fact that it was in 2015 in Germany that

the world first heard about the Fourth Revolution on a large scale. Then, Figure 3 shows the distribution of papers, depending on the subject area.

Data presented in Figure 3 suggest that more attention is focused on the technical side of the Fourth Industrial Revolution. From 2,127 as many as 1,014 are classified in the Engineering area (48%). This proves that the social side of change that is not yet fully studied. The same is true for the Web of Science database, where we are seeing a steady increase in the number of articles on the issue of the Fourth Industrial Revolution (2015 – 21, 2016 – 85, 2017 – 189, 2018 – 374, 2019 – 460). Most of them concern engineering electrical electronic (151), engineering industrial (130), computer science information systems (106), computer science theory methods (105).

Figure 3. *Number of papers depending on the Subject area, own study based on Scopus*



Source: *Own study.*

The next step was to search the Scopus database for magazines related to social sciences. This database was chosen because of the large number of articles on the issue of the Fourth Industrial Revolution. In addition, the database segregates the article into areas where one of them is social science, which counters the analysis carried out. The aim of the review was to set a time frame for the publication of the articles that could be reviewed. It was decided that publications from 2015-2020 and from Social Sciences area will be subject to literature analysis. The search criteria in the Scopus database were as follows:

• TITLE-ABS-KEY (fourth AND industrial AND revolution) AND (LIMIT-TO (SUBJAREA , "SOCI")) AND (LIMIT-TO (PUBYEAR , 2020) OR LIMIT-TO (PUBYEAR , 2019) OR LIMIT-TO (PUBYEAR , 2018) OR LIMIT-TO (PUBYEAR , 2017) OR LIMIT-TO (PUBYEAR , 2016) OR LIMIT-TO (PUBYEAR , 2015))

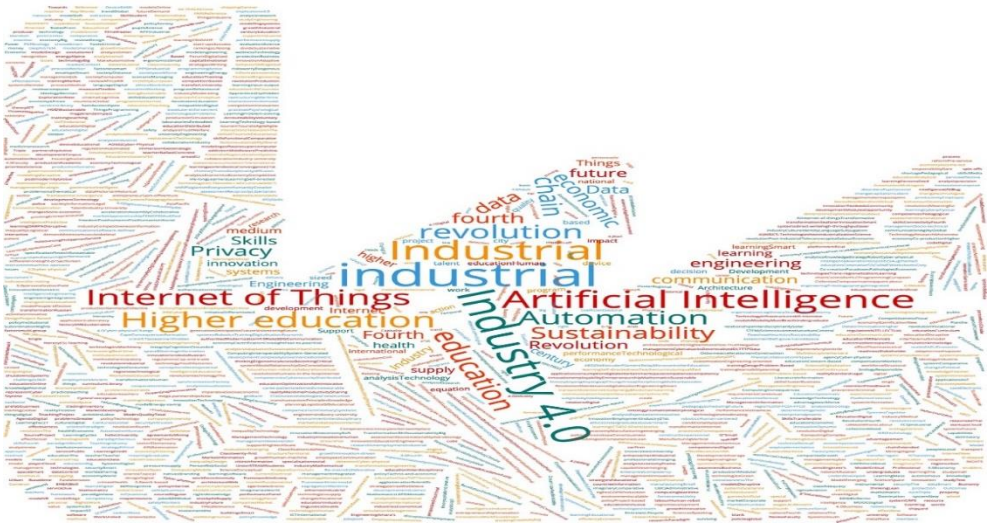
These actions led to the selection of a database of about 350 articles from which keywords were selected. The keywords collected were used to determine trends in the social side of the Industrial Revolution. It has to be added that besides the Social Sciences area, some articles regard areas such as: Economics, Econometrics and Finance, Business, Management and Accounting or Decision Sciences. Keyword analysis allowed to identify trends in this field.

After that, the articles were searched and selected in terms of key words: Industry 4.0, Industry 4.0 competences, education, accounting. These articles were very thoroughly verified on the basis of abstracts. If issues related to social side of Industry 4.0 or "4.0 changes" regarding education, accounting or competence requirements appeared in the abstract or keywords, then the text was selected for further, profound analysis.
In addition, the review of the literature is extended with search results for the above keywords in the Web of Science database and the Google Scholar search engine and also includes reports from international organizations, textbooks or articles by Polish authors who raised these issues in their scientific papers.

4. The Social Side of Changes – Trends and Characteristics Analysis

The analysis of keywords allowed us to study trends in the description of the Fourth Industrial Revolution in the area of Social Sciences. 353 articles were analysed, extracting, and analysing 1,861 keywords. The analysis was moving towards defining keywords, with the highest frequency of occurrences. Figure 4 represents a cloud of words, composed of keywords collected during data collection.

Figure 4. *The cloud of words composed of keywords collected during data collection.*



Source: *Own study, WordClouds.com*

The results of the deeper analysis and concrete number of occurrences are illustrated in Table 3. The keyword "Fourth Industrial Revolution" was deliberately omitted from this statement for obvious reasons. The third column shows keywords that contain the keyword from the first column. Thanks to this procedure, it is possible to show a broader perspective of the keywords that occur, in reference to those that occur most often. This gives us the opportunity to show the direction in which trends related to specific topics follow.

Table 3. *Keywords, with the highest frequency of occurrences.* Source: own study.

Keyword	Occurrences	Related keywords
Industry 4.0	81	Consequences of Industry 4.0
Artificial Intelligence (AI)	19	-
Internet of Things (IoT)	18	Internet of Things environment; Industrial Internet of Things
Technology	17	Social impact of technology, Technology Innovations, Technology Management, Disruptive Technology, Digital Technology
Automation	13	Production automation; HR Automation; Industrial Automation
Higher Education	12	African Higher Education; European Higher Education Area (EHEA); Skills for innovation in higher education
Innovation	12	Educational innovation; Business model innovation; Sustainable innovation;
Engineering Education	11	Modern engineering education; New Engineering Education; Control engineering education
Digital Transformation	10	-
Sustainability	10	Sustainability of operation system
Big Data	10	Big Data architecture; Big Data analytics
Education	10	Educational intelligence; Maritime education; Education 4.0; Future education; Workforce education; Online education; Management education; Lean education
Open Innovation	9	-
Skills	7	Essential future skills; Emerging future skills; Soft skills, Digital skills, Skills development; Soft Skills in Engineering; Demand for skills, Communication skills, 21st century skills
Privacy	5	-

Source: *Own study.*

Keyword analysis shows that the Fourth Industrial Revolution in this area is largely identified with Industry 4.0. Many scientists have drawn the attention of technology associated with the Fourth Revolution, namely Artificial Intelligence, Internet of Things, Big Data or automation. An important issue in the field of social sciences literature is education, especially higher education, which is devoted to many texts, also with a breakdown of the impact on higher education in individual countries. Also important is the fact that most of the education texts focus on Engineering Education, which leaves a gap in the study of changes in educational requirements and the

education system in other areas. In a sense, it is inherent to study the required competences or skills required by the Fourth Revolution. The table shows that research has been undertaken in this direction, especially as it is about the growing importance of soft competences.

5. Conclusions

An analysis of trends in the description of social changes concerning the Fourth Industrial Revolution has led to conclusions about the direction in which scientific research is heading. This also allowed for the formulation of potential guidance on the further development of research in this area.

The analysis showed that any social changes described by scientists are related to the concept of Industry 4.0. Scientists' attention is largely focused on technology that contributes to revolutionary change. This is because it will certainly change and change the picture of the work that a person does and his relationship with a machine or artificial intelligence. Such a change in the nature of work and computerization lead to changes in the requirements placed on employees (Frey and Osborne, 2017). The mix of skills needed to perform in modern societies has become increasingly complex and will keep evolving (Kergroach, 2017). Literature analysis leads us to the conclusion that soft competences such as communication, teamwork and leadership skills are gaining in importance. Nerevtherless, most of attempts to define the relevance of competences and, consequently, also attempts to adapt curricula, focus primarily on engineering education (Coşkun *et al.*, 2019).

Analysis of the literature shows that considerations of changes in the financial sector are not widespread (Rejikumar *et al.*, 2019). Nevertheless, technology disruption and automation will new tasks for finance professionals. Research and reports indicate that revolutionary changes will not only change but are already changing the characteristics of working in financial positions in organizations. For example, having a huge amount of data changes the requirements for people in accounting divisions. Rather than collecting and processing, the focus of the finance function and finance professional must be one of ensuring the integrity of data and using it in different ways. The role of the accountant with the registration of economic events, moves more towards a business partner for higher-level managers, who with their analysis will allow them to make optimal decisions (CIMA, 2019). Accounting graduates are expected to be knowledgeable in IT and programming skills (Ghani and Muhammad, 2019). Furthermore, as finance professional progresses through their career, the competency focus moves from pure technical skills to people and leadership skills (CIMA, 2019).

The focus on the area had twofold objectives. The first issue was to see how profound changes are taking place in a sector that may seem "conservative" when it comes to susceptibility to change. It must be stressed that finance will no longer be evaluated

purely on how costly it is to run, but on the added value finance brings to the organisation and the wider community. The second point is that competence changes are not sufficiently described in the financial sector and there is therefore a gap in research into updating curricula.

6. Discussion

The Fourth Industrial Revolution is a challenge for business (Herceg, Kuč, Mijušković, and Herceg, 2020), which needs and will need people who can find themselves in a new technological reality. It is human capital – educated and engaged employees provide an advantage in an increasingly volatile and competitive market (Hitka *et al.,* 2018). The literature presented in the article clearly indicates that the process of changing competence requirements is a process that is constantly changing, and more and more other competences open up a list of the most required ones. These considerations lead us to the conclusion that the equipment, for example, of university graduates, with these relevant competences will be their value on the labour market. This poses a huge challenge to the education system (Ashmawy and Schreiter, 2019). For example, to meet these expectations, Education 4.0 is becoming more popular. The concept of learning by doing, in which students are encouraged to learn and discover different things in singular ways based on experimentation (Almeida and Simoes, 2019). It cannot be denied that education and training should prepare us for the context in which creativity, innovation, reflexivity, entrepreneurship, flexibility and adaptability are deemed to be pivotal, as are a range of soft skills (Avis, 2018).

The literature review concludes that the articles that raise the technical aspect of the changes related to the Fourth Revolution prevail. For a comprehensive and thorough examination of the changes taking place, it is equally important to focus also on the social aspects of Revolution 4.0, not only because of its anticipated, but already observed impact on many social aspects on issues such as: changing the characteristics of certain professions or changing the competence requirements of people both who are and enter the labour market. The influence of digital technologies has an impact on competencies required in different jobs and changing the extent of their current use in workplaces (Mazurchenko and Maršíková, 2019). It must be stressed that Employees with learnability skills will be essential for organizations to adapt successfully to Industry 4.0.

Furthermore, it is recommended to undertake extensive research on students' awareness of the consequences of Industry 4.0, as it is this group entering the labour market, which is changing its characteristics in an era of wide-ranging digitalisation, that should be equipped with the knowledge, skills and competences that will allow them to function freely under changing conditions, based on the comprehensive use of information. Moreover, involvement of higher education in the syllabus of Industry 4.0 concept is important in terms of being able to adapt to future technologies (Baygin *et al.,* 2016; Penprase, 2018). Research should also include expert opinion surveys on

the status and directions of these changes, in order to ensure continuous updating of curricula. The Fourth Revolution is an epochal challenge that a conscious and prepared society can turn into its incredible success.

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